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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,054

06/07/2006

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06244/HG

6573

1933 7590 03/02/2009

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EXAMINER

TUROC, DAVID P

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,054	Applicant(s) MATSUDA ET AL.	
	Examiner DAVID TUROCY	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/24/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2 include equations, which require "depending on the content of Si and of Al" or "depending on the content of Si, Al, Cr, Mo, and V" respectively.

Claim 1 requires $Si+Al \geq 1.5 \times 10^{-7} \times t^{0.75} \times (T-465)^3 + 0.117$ and claim 2 requires $Si+Al + 5Cr, 15Mo, 15V \geq 1.5 \times 10^{-7} \times t^{0.75} \times (T-465)^3 + 0.117$. It is unclear what the left hand of the equations represent. Specifically for claim 1, it is unclear from the claims or the specification whether Si+Al is directed to the sum of the weight percent of the two components in the steel, an overall amount in the steel, etc. It appears that such is directed towards the sum of the weight percentage and therefore the examiner is applying prior art to such a degree.

Dependent claims fail to cure the deficiencies of the claims listed above.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6517995 by Takada et al.

Claims 1-4: Takada discloses a method for manufacturing a galvanized steel sheet comprising the steps of: preparing a hot-dip galvanized steel sheet consisting essentially of 0.12% C, 1.92% Si, 0.22% Mn, 0.007% P, 0.003% S, 0.03% Al, 0.0028% N, 1.11% Cu, 0.2% Mo by mass, and the balance being Fe and inevitable impurities; applying alloying treatment to the hot-dip galvanized steel sheet at a temperature of 500°C for a time of 25 seconds, wherein the Si+Al is 1.95% (see sample K for example).

$$\text{Si+Al} \geq 1.5 \times 10^{-7} \times t^{0.75} \times (T-465)^3 + 0.117$$

$$1.95 \geq 1.5 \times 10^{-7} \times (25)^{0.75} \times (500-465)^3 + 0.117$$

$$1.95 \geq 0.189.$$

This applies equally to the equation as established in claim 2. While the chart discloses the alloying temperature at °C/s, the examiner notes the specification discloses the alloying temperature is between 450-600°C and therefore it is the examiners position that the Table is incorrectly labeled because of the clear and contradictory teaching in the specification stating that alloying at a temperature above 600°C or below 450°C is insufficient (Column 10, line 52-Column 11, line 15). Therefore, Takada discloses controlling time and temperature of the alloying treatment in accordance with the claimed formula where t is the total time (sec) of holding the steel

Art Unit: 1792

sheet at 465.degree. C. or higher temperature on alloying a coating layer thereon, and T is the average temperature of the steel sheet during the total time t(sec) of holding the steel sheet at 465.degree. C. or higher temperature on alloying the coating layer thereon. Takada discloses multiple examples that read on the claim as written and example K is only used as exemplary.

Each of the weight % of the composition is within the range as claimed and the examiner notes that the claims include "consisting essentially of"; however the examiner notes that the claims as written are interpreted as "comprising" and thus are open to other components in the steel.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002038248 by Hirotatsu, hereafter JP '248 in view of JP 11-131145, hereafter JP '145.

JP '248 discloses a method for manufacturing a galvanized steel sheet comprising the steps of: preparing a hot-dip galvanized steel sheet consisting essentially of C, Si, Mn, 0% S, Al, 0% N, by mass, and the balance being Fe and inevitable impurities; applying alloying treatment to the hot-dip galvanized steel sheet at a temperature of 480-530°C for a time of 10-30 seconds, wherein the Si+Al is 1-

Art Unit: 1792

2.5%. Therefore, JP '248 discloses controlling time and temperature of the alloying treatment in accordance with the claimed formula where t is the total time (sec) of holding the steel sheet at 465.degree. C. or higher temperature on alloying a coating layer thereon, and T is the average temperature of the steel sheet during the total time t (sec) of holding the steel sheet at 465.degree. C. or higher temperature on alloying the coating layer thereon.

JP '248 fails to explicitly disclose including P in the steel, however, JP '145 discloses steel sheet is known to include C, Si, Mn, S, Al, N, by mass, and the balance being Fe and inevitable impurities, additionally discloses <0.03% P in the steel is known and suitable. Therefore taking the references collectively, it would have been obvious to have modified JP '248 to utilize P in the steel with a reasonable expectation of successful results because such is taught as known and suitable to be included in a similar steel composition.

As for the ranges of the components of the steel, In the case where the claimed ranges "overlap or lie" inside ranges disclosed by prior art a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257 191 USPQ 90. See MPEP 2144.05. Additionally, JP 248 and JP '145 discloses the claimed invention except for the exact range of the components. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to determined the desired % of components, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955). The

Art Unit: 1792

examiner notes that the claims include “consisting essentially of”; however the examiner notes that the claims as written are interpreted as “comprising” and thus are open to other components in the steel.

Alternatively, JP ‘248 discloses a method for manufacturing a galvanized steel sheet comprising the steps of: preparing a hot-dip galvanized steel sheet consisting essentially of C, Si, Mn, P, 0% S, Al, 0% N, by mass, and the balance being Fe and inevitable impurities; where Si+Al is 1-3%, applying alloying treatment to the hot-dip galvanized steel sheet(see abstract, problem and solution), however JP ‘145 fails to disclose the appropriate alloying treatment. However, JP ‘248 discloses a known and suitable alloying treatment for a steel sheet of similar composition includes heating at a temperature of 480-530°C for a time of 10-30 seconds. It would have been obvious to one of ordinary skill in the art to have modified JP ‘145 with the alloying treatment as taught by JP ‘248 with a reasonable expectation of successful and predictable results because such is taught as known and suitable in the art. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Claims 2-4: JP ‘248 discloses Ti, Cr, Mo, Nb, Ni, and Cu (abstract), and discloses 0.003-0.05% Nb, 0.05-1%Cr, 0.01-.2% Mo, 0.1-1% Cu, 0.05-0.5 Ni (see 0051-0053 of Japanese version). As for the ranges of the components of the steel, In the case where the claimed ranges “overlap or lie” inside ranges disclosed by prior art

Art Unit: 1792

a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257 191 USPQ 90. See MPEP 2144.05.

JP '145 fails to disclose the inclusion of such elements in the steel, however, taking the references collectively, it would have been obvious to have modified JP '145 to utilize Ti, Cr, Mo, Nb, Ni, and/or Cu in the steel with a reasonable expectation of successful results because such is taught as known and suitable to be included in a similar steel composition.

Additionally, JP 248 and JP '145 discloses the claimed invention except for the exact range of the components. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to determine the desired % of components, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

As for controlling the temperature in accordance with the equation of claim 2, this limitation is met for the same reasons as discussed above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5897967 by Hori et al explicitly discloses the sum of Si+Al is a result effective variable, directly affecting the time of alloying, and also discloses the time and temperature of alloying are interdependent on the completion of alloy treatment (Column 6-7, Column 8, line 06-Column 9, line 5). Hori additionally discloses composition and alloy treatment temperatures similar to those claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TUROCY whose telephone number is (571)272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Turocy/
Examiner, Art Unit 1792